containing material exposed to a heat carrier in the pyrolysis reactor to at least partially cause at least partial pyrolysis of said organic containing compound, said at least partial pyrolysis of said organic containing compound forming at least two pyrolysis products, said at least two pyrolysis products including pyrolysis gas and at least partially solid carbon containing residue;

b) feeding said solid carbon containing residue and said heat carrier into a firing, said at least partially solid carbon containing residue heated in said firing and forming waste gas and ash, said heat carrier being heated by said firing;

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c) feeding at least a portion or said ash and said heated heat carrier from said firing to said pyrolysis reactor, said ash and said heated heat carrier being combined with said organic containing material in said pyrolysis reactor;

d) feeding said pyrolysis gas into a gas reactor to produce a product gas having a high caloric value; and

e) directing at least a portion of said waste gas from said firing to said gas reactor to at least partially heat said pyrolysis gas in said gas reactor.

33. The method as defined in claim 32, wherein said pyrolysis reactor is selected from the group consisting of a moving bed reactor, double-deck oven, or a rotary drum reactor.

34. The method as defined in claim 32, wherein said pyrolysis gas includes condensable substances.

35. The method as defined in claim 32, wherein a reactant is fed into said gas reactor with said pyrolysis gas, at least a portion of said pyrolysis gas reacting with at least a portion of said reactant in said gas reactor.

36. The method as defined in claim 35, wherein said reactant includes steam.

37. The method as defined in claim 32, wherein said at least a portion of said waste gas at least partially fed into an indirect heat exchanger to at least partially heat said pyrolysis gas in said gas reactor, substantially all of said waste gas prevented from being mixed with said pyrolysis gas..

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38. The method as defined in claim 37, wherein pipes of said indirect heat exchanger includes a catalytically active material, said waste gas at least partially contacting said catalytically active material as said waste gas passes through the pipes.

39. The method as defined in claim 38, wherein is said waste gas is at least partially dedusted prior to passing through said pipes of said indirect heat exchanger

40. The method as defined in claim 32, wherein said pyrolysis is carried out at a temperature of about 550-650°C.

41. The method as defined in claim 32, wherein said at partial reaction of said pyrolysis gas is carried out at a temperature of about 900-1000°C.

42. The method as defined in claim 32, including the step of feeding steam into said pyrolysis reactor.

43. The method as defined in claim 32, including the step of pretreating said organic containing material prior to feeding said organic containing material into said pyrolysis reactor, said pretreating step including a step of at least partially dry said organic containing material.

44. The method as defined in claim 43, wherein said pretreating step including a step of at least partially pulverizing said organic containing material.

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45. The method as defined in claim 32, wherein said at least partial reaction of said pyrolysis gas in said gas reactor is carried out in the presence of a catalyst.

46. The method as defined in claim 45, wherein said catalyst includes a material selected from the group consisting of calcium/magnesium oxide, dolomite, calcite, nickel, nickel oxide, nickel aluminate, nickel spinel and mixtures thereof.

47. The method as defined in claim 45, wherein said indirect heat exchanger includes a solid bed reactor.

48. The method as defined in claim 47, wherein at least a portion of said catalyst is fed into said gas reactor in an entrained flow.

49. The method as defined in claim 32, wherein said pyrolysis gas is at least partially dedusted prior to being fed into said gas reactor.

50. The method as defined in claim 32, wherein at least a portion of said pyrolysis gas is used as fuel to supply heat for a process selected from the group consisting of said pyrolysis, said reaction of said pyrolysis gas, said firing, and combinations thereof.

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51. The method as defined in claim 32, wherein said firing includes a grate firing.

52. The method as defined in claim 32, wherein said heat carrier includes a fire-resistant material selected from the group consisting of sand, silicon, grit, gravel, split, aluminum silicate, ceramic, corundum, graywacke, quartzite, cordierite, metals mixtures thereof.

53. The method as defined in claim 32, wherein said heat carrier includes molded bodies consisting of metallic balls, non-metallic balls, and combinations thereof.

54. The method as defined in claim 32, wherein said heat carrier has an average grain size of about 1-40mm.

END

REMARKS

Applicants have amended the above-identified patent application to correct several informalities in the specification and added new claims 32-54 to obtain claim coverage for additional aspects of the invention. Applicants submit that all the pending claims are in allowable form and

notice to that effect is earnestly solicited.

Respectfully submitted,

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